California Environmental Protection Agency

Air Resources Board

Notice of Public Availability of Modified Text:

Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used In Motor Fueling Operations

April 2002

State of California
AIR RESOURCES BOARD

Notice of Public Availability of Modified Text

PUBLIC HEARING TO CONSIDER THE ADOPTION OF AMENDMENTS TO DEFECTS SUBSTANTIALLY IMPAIRING THE EFFECTIVENESS OF VAPOR RECOVERY SYSTEMS USED IN MOTOR VEHICLE FUELING OPERATIONS

Public Hearing Date: November 15, 2001
Public Availability Date: April 15, 2002
Deadline for Public Comment: April 30, 2002

At a public hearing held November 15, 2001, the Air Resources Board (the "Board" or "ARB") approved amendments to section 94006, title 17, California Code of Regulations (CCR). The amendments are an update to the list of substantial defects for vapor recovery equipment at gasoline dispensing facilities. Staff recommended that the 12 defects now listed in title 17, CCR, section 94006 (a) through (j) be repealed from the regulation and the document titled "Vapor Recovery Equipment Defects List" be adopted in their place, with 15-day changes. This new defects list comprises the defects that have been listed in the individual Executive Orders that certify vapor recovery as "substantial" equipment as well as the original generic defects. Due to the enormous amount of change expected in the vapor recovery field as new enhanced vapor recovery (EVR) systems are certified and the existing pre-EVR systems are decertified, staff also recommended that the Board affirm its intent that the Executive Officer make changes to the section 94006 defects list as appropriate in accordance with the procedures specified in section 41960.2(c) of the Health and Safety Code.

The Board's Action At the conclusion of the hearing, the Board adopted Resolution 01-52, in which it approved the originally proposed amendments with modifications. The modifications had been suggested by staff in response to public comments made to staff after issuance of the original proposal. The text of the suggested modifications was set forth and explained in a document titled "Staff's Suggested Changes to the Original Regulatory Proposal," which included the modified Proposed Regulation Order (i.e. the regulatory text of section 94006 of title 17, CCR) and the modified Vapor Recovery Equipment Defects List Title 17 Update (i.e. the document that is incorporated by reference in section 94006 of title 17, CCR and that lists the identified defects). A package of these three documents was distributed at the hearing. The Resolution, the modified Proposed Regulation Order, and the modified Vapor Recovery Equipment Defects List Title 17 Update are attached to this Notice. The Resolution directed the Executive Officer to make the modified text available for a supplemental comment period in accordance with the Administrative Procedure Act.

The criteria used to establish which defects are considered by the ARB to substantially impair the effectiveness of vapor recovery equipment and other language clarifications have also been added to the Proposed Regulation Order. The conforming advisability of defining which defects are substantial was

identified in letters to, and testimony before, the Board. After expressing its concern about this issue, the Board endorsed the suggestion by Chief Deputy Executive Officer Tom Cackette that criteria for establishing which defects are "substantial" be specified as part of the 15-day changes to the regulation.

The remainder of the Board's approved modifications are to the so–called Vapor Recovery Equipment Defects List Title 17 Update document (Appendix 2 of the Staff Report), renamed the "Vapor Recovery Equipment Defects List," which is incorporated by reference in title 17 CCR section 94006. In addition to nonsubstantive language clarifications, three defects were removed from the list because the significance of the excess emissions that may result from these defects cannot be accurately quantified. These include the roundness specifications for nozzle spouts (ring gage test) for all systems; the pressure integrity of drop tube/drain valve assembly requirements for the VR-101-A Executive Order; and the static torque constraints of rotatable phase I adapters for the VR-101-A Executive Order. Defect identification methods used in the verification procedures for these three defects were also removed because they are no longer applicable. Throughout the list, defects that will result in the removal from service of all affected interrelated systems are now followed by an asterisk ("*") to distinguish them from defects that will result in the removal of a single component or individual fueling point from service. A statement explaining the significance of the asterisk was added after each affected Executive Order on the list. A cover sheet with the adoption date has also been added. Finally, in the Resolution, the Board affirmed its intent that the defects list be kept current by the Executive Officer.

Each of the changes described here is shown in underline/strikeout format on the attached documents.

The complete texts of these modified documents, with all of the modifications clearly indicated, are available on the ARB's Internet site for this rulemaking:

http://www.arb.ca.gov/regact/vrdef01/vrdef01.htm

Printed copies are available from R. Neil Nipper, Monitoring and Laboratory Division, telephone (916) 445-9391 or email rnipper@arb.ca.gov.

Comments and Subsequent Action In accordance with section 11346.8 of the Government Code, the Board's Resolution directed the Executive Officer to amend section 94006, title 17, CCR, and the incorporated documents in accordance with the Board's directions, after making the text of the modifications available to the public for comment for a period of at least 15 days. The Board further provided that the Executive Officer shall consider such written comments regarding the modified text that may be submitted during this period and shall make modifications as may be appropriate in light of the comments received. This notice complies with that directive.

Written comments on the proposed modifications may be submitted by postal mail, electronic mail, or facsimile:

Postal mail is to be sent to:

Clerk of the Board
Air Resources Board
P.O. Box 2815
Sacramento, California 95812

Electronic mail is to be sent to: vrdef01@listserv.arb.ca.gov

Facsimile submissions are to be transmitted to the Clerk of the Board at (916) 322-3928.

In order to be considered by the Executive Officer, comments must be directed to the ARB in one of the three forms described above and received by the ARB by 5:00 p.m. on the last day for supplemental comment listed at the beginning of this notice. Only comments relating to the modifications to the text of the regulation or incorporated document will be considered by the Executive Officer.

If you are a person with a disability and desire to obtain this document in an alternative format, please contact the Air Resources Board ADA Coordinator at (916) 323-4916, or
TDD (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area.

Attachment A

Resolution 01-52

State of California
AIR RESOURCES BOARD

Resolution 01-52

November 15, 2001

Agenda Item No.: 01-9-3

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (ARB or Board) to adopt standards, rules and regulations and to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, the emissions captured by vapor recovery equipment include volatile organic carbons, an ozone precursor, and benzene, a toxic air contaminant;

WHEREAS, the emissions reductions attributed to the vapor recovery program currently set forth in the State Implementation Plan (SIP) are 410 tons per day of hydrocarbons;

WHEREAS, section 41960.2(c)(1) of the Health and Safety Code requires the Executive Officer of the state Board to identify and list equipment defects in systems for the control of gasoline vapors resulting from motor vehicle fueling operations that substantially impair the effectiveness of the systems in reducing air contaminants;

WHEREAS, section 41960.2(c)(1) of the Health and Safety Code also requires the Executive Officer to identify and list the defects for each certified system and to specify the defects in the applicable certification documents for each system;

WHEREAS, section 41960.2(c)(2) of the Health and Safety Code requires the Executive Officer of the state Board on or before January 1, 2001, and at least once every three years thereafter, to review the list at a public workshop to determine whether the list requires an update to reflect changes in equipment technology or performance;

WHEREAS, section 41960.2(c)(3) of the Health and Safety Code authorizes the Executive Officer to initiate a public review of the list upon a written request that demonstrates, to the satisfaction of the Executive Officer, the need for such a review notwithstanding the timeframes specified in section 41960.2(c)(2);

WHEREAS, section 41960.2(c)(3) of the Health and Safety Code also requires the Executive Officer to update the list of equipment defects no later than 12 months after determining that an update is required;

WHEREAS, section 94006 of title 17 of the California Code of Regulations, titled Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used in Motor Vehicle Fueling Operations, was adopted in 1982 and has not been changed since;

WHEREAS, other defects that substantially impair the effectiveness of vapor recovery systems are currently set forth in the certification documents for each system;

WHEREAS, a public workshop was held on December 13, 2000, to review the list in section 94006 of title 17 of the California Code of Regulations and the Executive Officer determined that the current list is inadequate and an update of the list is necessary to ensure that all substantial defects are set forth in one document;

WHEREAS, staff anticipates a period of unprecedented change in vapor recovery equipment over the next six years, with many of the substantial defects that are currently listed being superseded as components meeting the EVR requirements are certified;

WHEREAS, the California Environmental Quality Act and Board regulations require that no project which may have significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts;

WHEREAS, the proposed list has been developed at numerous workshops and committee meetings with air district vapor recovery enforcement staff, vapor recovery equipment manufacturers, vapor recovery maintenance persons, vapor recovery systems/equipment testers, and gasoline facility operator associations; as well as at three public workshops on December 13, 2000, May 22, 2001, and August 16, 2001;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of chapter 3.5 (commencing with section 11340), part 1, division 3, title 2 of the Government Code; and

WHEREAS, the Board finds that:

1. There is greater variety and substantially more variability in vapor recovery equipment since section 94006 of title 17 of the California Code of Regulations was adopted in 1982;

2. The defects listed currently in subsections (a) through (j) of section 94006 of title 17 of the California Code of Regulations are no longer applicable to all vapor recovery systems and should be updated and supplemented with the defects listed in the certification documents;

3. The defects listed in the document titled “Vapor Recovery Equipment Defects List Title 17 Update,” set forth in Attachment A hereto and incorporated by reference herein, substantially impair the effectiveness of the gasoline vapor recovery systems in reducing air contaminants during motor vehicle fueling operations.

4. More effective and consistent enforcement of gasoline vapor recovery requirements is necessary statewide in order to meet the emission

reduction targets for vapor recovery equipment in the State Implementation Plan (SIP).

5. Consolidation of all previously listed equipment defects, whether currently set forth in section 94006 of title 17 of the California Code of Regulations or in the individual certification documents, will enhance both compliance by station operators and enforcement by air district inspection personnel of vapor recovery requirements pertaining to equipment used in vehicle fueling operations.

6. Specification of a verification procedure for each listed defect will facilitate compliance and enforcement efforts as well as consistency and detection accuracy.

7. The phase-in of EVR will result in new systems and equipment being certified and the need to keep pace with their certification by identifying associated defects that substantially impair the effectiveness of those systems and equipment.

8. The Executive Officer, when certifying EVR systems and equipment, will identify any substantial defects for each system or component and should be authorized to revise the list of substantial defects to ensure that it remains current.

9. The enhanced compliance and enforcement that will result from the proposed amendments may result in decreased emissions from vapor recovery equipment used in motor vehicle fueling activities and will have a positive impact on the state's air quality.

10. There is no reasonable alternative considered by the Board or otherwise identified by those who testified that would be more effective in carrying out the purpose for which the regulations are proposed or would be as effective and less burdensome to affected private persons or businesses.

11. No adverse environmental impacts are expected to result from the proposed amendments to section 94006, title 17, California Code of Regulations.

12. Amendment of the provisions of title 17, California Code of Regulations, as set forth in Attachment A hereto, and incorporation of the Vapor Recovery Equipment Defects List Title 17 Update document, are necessary and appropriate to satisfy the requirements of section 41960.2 of the Health and Safety Code.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves section 94006, title 17, California Code of Regulations, and the incorporated document, as set forth in Attachment A hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to adopt the modified amendments that are approved herein, after making the

modified regulatory language available for public comment for a period of at least 15 days, provided that the Executive Officer shall consider such written comments regarding the modified text that may be submitted during this period, shall make modifications as may be considered in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted.

BE IT FURTHER RESOLVED that, as existing vapor recovery equipment is decertified and new equipment is certified, the Executive Officer is directed to update the Vapor Recovery Equipment Defects List incorporated by reference in section 94006, title 17, California Code of Regulations, as appropriate to maintain its currency and facilitate its use and implementation by district vapor recovery enforcement staff, vapor recovery equipment manufacturers, vapor recovery maintenance personnel, vapor recovery systems and equipment testers, and gasoline facility operators.

I hereby certify that the above is a true and correct copy of Resolution 01-52, as adopted by the Air Resources Board.

signed copy on file

_____
Marie Kavan, Clerk of the Boar

Attachment B

Proposed Regulation Order
(Including Board-Approved Modifications to the Original Proposal)

PROPOSED REGULATION ORDER

Note: The text of the proposed amendments is shown in underline to indicate additions and in ~~strikeout~~ to indicate deletions. Changes (15 day) to the original regulatory proposal are shown in double underline to indicate additions and in ~~double strikeout~~ to indicate deletions.

Amend section 94006, title 17, California Code of Regulations, to read as follows:

§94006. Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used in Motor Vehicle Fueling Operations.

~~For the purposes of Section 41960.2 of the Health and Safety Code, the following constitute equipment defects in systems for the control of gasoline vapors resulting from motor vehicle fueling operations which substantially impair the effectiveness of the systems in reducing air contaminants:~~

(a) ~~Absence or disconnection of any component required to be used in the Executive Order(s) that certified the system.~~~~Incorporated by reference: Vapor Recovery Equipment Defects List Title 17 Update Dated August 21, 2001.~~For the purposes of section 41960.2 of the Health and Safety Code, any defect that meets the following criteria shall be considered substantial and listed by the Board hearing: the defect did not exist when the system was certified; the excess emissions associated with the defect have the potential to degrade fueling point or system efficiency by at least five percent; and, a field verification procedure exists to identify the defect.

(b) ~~A vapor hose which is crimped or flattened such that the vapor passage is blocked, or the pressure drop through the vapor hose exceeds by a factor of two or more the requirements in the system certified in the Executive Order(s) applicable to the system.~~For the purposes of section 41960.2 of the Health and Safety Code, equipment defects in systems for the control of gasoline vapors resulting from motor vehicle fueling operations which substantially impair the effectiveness of the systems in reducing air contaminants are set forth in the "Vapor Recovery Equipment Defects List" which is incorporated by reference herein.

~~(c) A nozzle boot which is torn in one or more of the following manners:~~
~~(1) Triangular-shaped or similar tear 1/2 inch or more to a side, or hole 1/2 inch or more in diameter or,~~
~~(2) Slit 1 inch or more in length.~~

~~(d) Faceplate or flexible cone which is damaged in the following manner:~~
~~(1) For balance nozzles and for nozzles for aspirator and eductor assist type systems, damage shall be such that the capability to achieve a seal with a fill pipe interface is affected for 1/4 of the circumference of the faceplate (accumulated).~~
~~(2) For nozzles for vacuum assist-type systems, more than 1/4 of the flexible cone missing.~~

~~(e) Nozzle shutoff mechanisms which malfunction in any manner.~~

~~(f) Vapor return lines, including such components as swivels, anti-recirculation valves and underground piping, which malfunction or are blocked, or restricted such that pressure drop through the lines exceeds by a factor of two or more requirements specified in the Executive Order(s) that certified the system.~~

~~(g) Vapor processing unit which is inoperative or severely malfunctioning.~~

~~(h) Vacuum producing device which is inoperative or severely malfunctioning.~~

~~(i) Pressure/vacuum relief valves, vapor check valves, or dry breaks which are inoperative.~~

~~(j) Any equipment defect which is identified in an Executive Order certifying a system pursuant to the Certification Procedures incorporated in Section 94001 of Title 17, California Administrative Code, as substantially impairing the effectiveness of the system in reducing air contaminants.~~

~~All nozzles affected by the above defects are to be considered defective.~~

Authority cited: Sections 39600, 39601 and 41960.2, Health and Safety Code.
Reference: Sections 41954 and 41960.2, Health and Safety Code.

Attachment C

Vapor Recovery Equipment Defects List

California Environmental Protection Agency

Air Resources Board

PROPOSED

Vapor Recovery Equipment Defects List

Adopted:_____

Note: Changes to the original regulatory proposal are shown in underline to indicate additions and in ~~strikeout~~ to indicate deletions.

Vapor Recovery Equipment Defects List ~~Title 17 Update~~

~~Modified August 21, 2001~~ Date of Issuance: _____

All Systems/any E.O.		
equipment	defects	verification procedure
~~general~~ system	any equipment defect which is identified in an Executive Order (E.O.) certifying a system pursuant to the Certification Procedures incorporated in Section 940~~0~~11 of Title 17, California ~~Administrative~~ Code of Regulations	as set forth in the applicable E.O.
	absence or disconnection of any component required to be used in the E.O.(s) that certified the system	direct observation
	installation or use of any uncertified component	direct observation
	dispensing rate greater than ten gallons per minute (10.0 gpm) or less than the greater of five (5.0) gpm or the limit stated in the E.O. measured at maximum fuel dispensing	direct measurement for 60 seconds minimum
	phase I vapor poppet inoperative	direct observation
nozzles	nozzle automatic liquid shutoff mechanisms which malfunction in any manner	EPO No. 26-F-1/direct observation
	~~spout does not meet roundness specifications described in 40 CFR, Part 80, Section 80.22 (f)(2)~~	~~ring gage test/direct measurement~~

G-70-7 series Hasstech VCP-2 and VCP-2A		
equipment	defects	verification procedure
system	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
	defective vapor valve	GDF-01/GDF-03
hoses	any coaxial hose with a perforation exceeding one-eighth (0.13) inch diameter	direct measurement/ observation
	any coaxial hose with slits or tears in excess of one-fourth (0.25) inch in length	direct measurement/ observation
processing unit	three consecutive unsuccessful attempts to ignite the incinerator which occur at least two hours after a bulk delivery	direct measurement/ observation/system monitor observation
	unit does not activate when the system pressure reaches or exceeds two (2.0) inches water column and occurs at least two hours after a bulk delivery	direct measurement using storage tank pressure device
	emissions which exceed Ringelmann one-half (½) or ten percent (10%) opacity and not attributable to a bulk delivery	Method 9
	vapor processing unit inoperative *	direct observation
collection unit	vacuum producing device inoperative	direct observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-14 series Red Jacket	G-70-17 series Emco Wheaton	G-70-23 series Exxon
G-70-25 series Atlantic Richfield	G-70-33 series Hirt	G-70-36 series OPW
G-70-38 series Texaco	G-70-48 series Mobil	G-70-49 series Union
G-70-52 series Red Jacket, Hirt	G-70-53 series Chevron	G-70-78 series EZ-flow rebuilds
G-70-107 series Rainbow rebuilds	G-70-125 series Husky Model V	G-70-127 series OPW 111V
G-70-134 series EZ-flow rebuilds	G-70-170 series EZ-flow rebuilds	

equipment	defects	verification procedure
nozzles	any nozzle boot torn in one or more of the following manners: a triangular-shaped or similar tear one-half (0.50) inch or more on any side, or hole one-half (0.50) inch or more in diameter, or slit one (1.0) inch or more in length	direct measurement/ observation
	any faceplate or flexible cone damaged in the following manner: for balance nozzles and for nozzles for aspirator and eductor assist type systems, damage such that the capability to achieve a seal with a fill pipe interface is affected for one-fourth (0.25) of the circumference of the faceplate (accumulated)	direct measurement/ observation
	flexible cone damaged in the following manner: for booted type nozzles for vacuum assist-type systems, more than one-fourth (0.25) of the flexible cone missing	direct measurement/ observation
	insertion interlock mechanism which will allow dispensing when the bellow is uncompressed	direct observation
hoses	any coaxial balance hose with 100 ml or more liquid in the vapor path	direct measurement
	any hose with a visible opening	direct observation
processing unit	vapor processing unit inoperative *	direct observation
vapor return lines	pressure drop through the vapor path exceeds by a factor of two or more requirements specified in the Executive Order(s) that certified the system	TP201.4 or equivalent

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-118 series Amoco V-1		
equipment	defects	verification procedure
system	defective vapor valve	GDF-01/GDF-03
	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
Husky V-1 nozzle	efficiency compliance device (ECD) damaged such that at least one eighth (0.13) of the diameter is missing	direct measurement/ observation
	less than two unblocked vapor holes	direct observation
OPW 11-VAA nozzle	any ECD damaged such that a slit from the outer to inner edge exists	direct measurement/ observation
	less than three unblocked vapor holes	direct observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-150 series Marconi (Gilbarco)Vapor Vac		
equipment	defects	verification procedure
system	pressure drop through the system exceeds one-half (0.50) inches water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	defective vapor valve	GDF-01/GDF-03
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	both booted and unbooted nozzle types connected to the same vapor pump	direct observation
	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
Catlow ICVN nozzle	less than three unblocked vapor holes	direct observation
	efficiency compliance device slit from base to the rim	direct observation
Emco Wheaton A4505 nozzle	less than three unblocked vapor holes	direct observation
	one-eighth (0.13) of vapor guard circumference missing	direct measurement/ observation
Emco Wheaton A4500 nozzle	less than three unblocked vapor holes	direct observation
Husky V34 6250 nozzle	a one and one-half (1.5) inch slit in vapor splash guard	direct measurement/ observation
	any hole greater than three-eighths (0.38) inch in vapor splash	direct measurement/ observation
Husky V3 6201 nozzle	all vapor holes blocked	direct observation
OPW 11VAI nozzle	less than four unblocked vapor holes	direct observation
OPW12VW nozzle	all vapor holes blocked	direct observation
	vapor escape guard with three-fourths (0.75) of the circumference missing	direct measurement/ observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-153 series Dresser/Wayne Vac		
equipment	defects	verification procedure
system	any splash guard that interferes with the operation of a vapor escape guard (VEG) or vapor splash guard (VSG) unit	direct measurement/ observation
	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
	defective vapor valve	GDF-01/GDF-03
OPW 11VAI and Husky V34 6200-4 nozzles	less than two unblocked vapor holes	direct observation
	any VEG damaged such that at least one-eighth (0.13) of the circumference is missing	direct measurement/ observation
Husky V34 6200 nozzle	less than two unblocked vapor holes	direct observation
Husky V34 6200 and V34 6250 nozzles	any VSG damaged such that at least a one and one-half (1.5) inch slit has developed	direct measurement/ observation
	any VSG flange portion that does not make contact with or cover the entire fill-pipe opening	direct measurement/ observation
	any VSG with a hole greater than three-eighths (0.38) inch	direct measurement/ observation
Emco Wheaton A4505 nozzle	less than three unblocked vapor holes	direct observation
	any vapor guard (VG) damaged such that at least one-eighth (0.13) of the circumference is missing	direct measurement/ observation
Catlow ICVN and Richards Astrovac nozzles	less than three unblocked vapor holes	direct observation
	any efficiency compliance device damaged with a slit from the base to the rim	direct observation
OPW 12VW nozzle	all vapor holes blocked	direct observation
	any VEG damaged such that at least three-quarters (0.75) of the circumference is missing	direct measurement/ observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-154 series Tokheim MaxVac		
equipment	defects	verification procedure
nozzles	defective vapor valve	GDF-01/GDF-03
OPW 11VAI and Husky V34 6200-5 nozzles	efficiency compliance device (ECD) damaged such that at least one-fourth (0.25) of the circumference is missing	direct measurement/ observation
Husky V34 6200 and V34 6250 nozzles	less than two unblocked vapor holes	direct observation
	vapor splash guard (VSG) damaged such that at least a one and one-half (1.5) inch slit has developed	direct measurement/ observation
	VSG damaged such that greater than a three-eighths (0.38) inch hole has developed	direct measurement/ observation
Emco Wheaton A4505	less than seven unblocked vapor holes	direct observation
Catlow ICVN and Richards Astrovac	less than four unblocked vapor holes	direct observation
	any nozzle with an ECD damaged with at least one-fourth (0.25) of the circumference missing	direct measurement/ observation
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-159 series Saber nozzle for Gilbarco (Marconi) Vapor Vac and WayneVac		
equipment	defects	verification procedure
nozzles	a fill guard damaged such that at least one-fourth (0.25) of the outer edge of the guard is missing	direct measurement/ observation
	less than four unblocked vapor holes on the Gilbarco (Marconi) systems	direct observation
	less than two unblocked vapor holes on the WayneVac systems	direct observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-163 series OPW Vapor EZ		
equipment	defects	verification procedure
nozzles	efficiency compliance device damaged such that at least one-eighth (0.13) of the diameter is missing	direct measurement/ observation
	less than three unblocked vapor holes	direct observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-164 series Hasstech VCP-3A		
equipment	defects	verification procedure
system	defective vapor valve	GDF-01/ GDF-03
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
OPW 11VAI steel spout	less than six unblocked vapor holes	direct observation
OPW 11VAI aluminum spout	less than four unblocked vapor holes	direct observation
Husky V3 6201 nozzle	all vapor holes blocked	direct observation
Husky V34 6200-8 nozzle	all vapor holes blocked	direct observation
Emco Wheaton A4500 nozzle	any visible puncture or tear of the vapor guard/vapor seal assembly	direct observation
	less than three unblocked vapor holes	direct observation
collection unit	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	normal operating level at the inlet of the collection unit less than thirty (30) inches water column vacuum	direct measurement/ observation
processing unit	emissions which exceed Ringelmann one-half (½) or ten percent (10%) opacity and not attributable to a bulk delivery	Method 9
	twenty (20) consecutive unsuccessful attempts to ignite the process unit	direct measurement/ observation/ system monitor observation
	dispensing when the process unit is disabled	direct measurement/ observation/system monitor observation
	processing unit inoperative *	direct observation
ECS-1 electronic control and status panel	ratio of process unit/solenoid valve time less than nine tenths (0.90)	direct measurement/ observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-165 series Healy Model 600		
equipment	defects	verification procedure
nozzles	any nozzle with a vapor guard damaged such that a slit from the outer edge of the open end flange to the spout anchor clamp	direct observation
	any nozzle which has fewer than four unblocked vapor collection holes	direct observation
	defective vapor valve	GDF-01/GDF-03
	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
system	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
central vacuum unit	dispensing when the central vacuum unit is disabled *	direct measurement/ observation/system monitor observation
	vacuum level outside of the range specified in G-70-165 for more than fifteen (15) seconds (Approval Letter 97-20), measured while dispensing is occurring	direct measurement/ observation/system monitor observation
	product dispensed when the vapor return line valve is closed	direct measurement/ observation/TP201.5

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-169 series Franklin Electric Intellivac		
equipment	defects	verification procedure
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
	defective vapor valve	GDF-01/ GDF-03
OPW 11VAI nozzle	efficiency compliance device damaged such that at least one-fourth (0.25) of the circumference is missing	direct measurement/ observation
	fewer than two unblocked vapor collection holes	direct observation
Husky V34 6250 nozzle	any nozzle with a vapor splash guard (VSG) damaged such that at least one and one-half (1.5) inch slit has developed	direct measurement
	any VSG damaged such that greater than a three-eighths (0.38) inch hole has developed	direct measurement

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-175 series Hasstech VCP-3A		
equipment	defects	verification procedure
system	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
Emco Wheaton A4500 nozzle	fewer than three unblocked vapor collection holes	direct observation
	any visible puncture or tear of the vapor guard/vapor seal assembly	direct observation
Husky V34 6200-8	all vapor collection holes blocked	direct observation
dispenser	defective vapor valve	GDF-01/ GDF-03
collection unit	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	dispensing when the collection unit is disabled	direct observation
processing unit	twenty consecutive unsuccessful attempts to ignite the processing unit	direct observation/ system monitor observation
	emissions which exceed Ringelmann one-half (½) or ten percent (10%) opacity and not attributable to a bulk delivery	Method 9
	dispensing when the processing unit is disabled	direct observation/ system monitor observation
	processing unit inoperative *	direct observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-177 series Hirt VCS400-7		
equipment	defects	verification procedure
system	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	processing unit inoperative *	direct observation
OPW 11VA-29 nozzle	defective vapor valve	GDF-01/ GDF-03
	less than five unblocked vapor collection holes	direct observation
hoses	any visible puncture or tear equivalent to a diameter of 0.136 inches or greater	direct measurement/ observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-179 series Catlow ICVN-VI		
equipment	defects	verification procedure
nozzles	efficiency compliance device damaged such that at least three-fourths (0.75) of the diameter is missing	direct measurement/ observation
	any nozzle which has less than four unblocked vapor collection holes	direct observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-183 series Healy/Franklin Vac Assist		
equipment	defects	verification procedure
nozzles	a vapor guard damaged such that a slit exists from the outer edge of the open end flange to the spout anchor clamp	direct observation
	any nozzle which has less than four unblocked vapor collection holes	direct observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-186 series Healy Model 400 ORVR		
equipment	defects	verification procedure
nozzles	any operating pressure range at the nozzle boot/fill-pipe interface less than one-half (0.50) inches water column vacuum or greater than one-fourth (0.25) inches water column pressure	EO G-70-186 Exhibit 5
	~~dispensing when the central vacuum unit is disabled~~	~~direct measurement/ observation/ system monitor observation~~
	defective vapor valve	GDF-01/GDF-03
system	system not operating within the vacuum level range as per G-70-186	direct measurement/ observation/ system monitor observation
	product dispensed when the central vacuum unit is inoperative or disabled *	direct measurement/ observation/TP201.5 or equivalent system monitor observation
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-187 series Healy 400 ORVR AGT		
equipment	defects:	verification procedure
nozzles	any operating pressure range at the nozzle boot/fill-pipe interface less than one-half (0.50) inches water column vacuum or greater than one-fourth (0.25) inch water column pressure	EO G-70-187 Exhibit 5 test
	nozzle boot tears greater than one-half (0.50) inch in length	direct measurement/ observation
central vacuum unit	system vacuum less than sixty-five (65) inches or greater than eighty-five (85) inches water column	direct measurement/ observation
	system does not achieve an operating vacuum of sixty-five (65) inches water column within fifteen (15) seconds after the system is energized	direct measurement/ observation
	system does not achieve an operating vacuum of sixty-five (65) inches water column for three consecutive dispensing episodes	direct measurement/ observation
	system does not achieve an operating vacuum of sixty-five (65) inches water column within a one hour period for any single dispensing episode	direct measurement/ observation
	vacuum level dropping below sixty (60) inches water column for more than three seconds after the system has reached sixty-five (65) inches water column, while dispensing is occurring	direct measurement/ observation
	vacuum level above ninety (90) inches water column while dispensing is occurring	direct measurement/ observation
	product dispensing when the non-restrictive ball valve installed in the vapor return line is closed	direct measurement/ observation
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
Phase II system	any venting through system monitor vent in excess of ten hours in any calendar day not attributable to a Phase I fuel delivery	direct measurement/ observation/ system monitor observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-188 series Catlow ICVN w/Gilbarco (Marconi) VaporVac System		
equipment	defects	verification procedure
nozzles	ECD damaged such that at least three-fourths (0.75) of the diameter is missing	direct measurement/ observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-191 series Healy ORVR		
equipment	defects	verification procedure
nozzles	any nozzle with a vapor collection boot which has one-half (0.50) of the mini-boot faceplate or greater missing	direct measurement/ observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-193 series Hill-Vac		
equipment	defects	verification procedure
system	fillpipe gauge pressure less than negative one (–1.0) inch or greater than two (2.0) inches water column	direct measurement/ observation
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
nozzles	a boot with any tear exceeding one-half (0.50) inch	direct measurement/ observation
	faceplate damage such that the fillpipe interface is adversely affected for twenty-five percent (25%) or more of the circumference of the faceplate	direct measurement/ observation
jet pump	dispensing of gasoline when either jet pump is disabled	direct observation
	failure to achieve operating vacuum of thirty-five (35) inches water column within five seconds after the system is activated, for three consecutive dispensing episodes	direct measurement/ observation
	a vacuum level below fifteen (15) inches water column for more than three seconds after the system has reached thirty-five (35) inches water column while dispensing	direct measurement/ observation
	a vacuum level above eighty-five (85) inches water column measured while dispensing to non-ORVR vehicles	direct measurement/ observation
	product dispensing when any ball valve installed at the vapor return line connection to each Healy Model 100 jet pump is closed	direct measurement/ observation
liquid drop out pot	opening drain valve at anytime other than when repair operations are underway	direct observation
	product dispensing when any ball valve installed at the liquid drop pot in the liquid removal line is closed	direct measurement/ observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

G-70-196 series SaberVac		
equipment	defects	verification procedure
Husky 605104 nozzle	vapor splash guard (VSG) with a one and one-half (1.5) inch or larger slit	direct measurement/ observation
	VSG with a three-sixteenths (0.19) inch or larger hole	direct measurement/ observation
	the VSG flange portion doesn't make contact with entire fillpipe opening	direct observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard as described in G-70-196	as described in G-70-196
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria *	TP201.3 or equivalent
	underground storage tank gauge pressure greater than two inches water column over an extended period as defined by E.O. G-70-196 Exhibit 2	direct measurement/ observation
	pressure drop through system exceeding one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
	dispensing of product from any fueling point associated with a disconnected vapor line	direct measurement/ observation

* When the identified defect is detected in the listed equipment, the defect determination applies to all affected interrelated systems (which may include all systems at the motor vehicle fueling operation).

~~VR-101 series Phil-Tite Phase I~~		
~~equipment~~	~~defects~~	~~verification procedure~~
~~drop tube/drain valve assembly~~	~~system not able to maintain pressure integrity as specified in Executive Order VR-101-A~~	~~TP201.1C~~
~~rotatable Phase I adapters~~	~~adapter does not rotate 360 degrees with less than 108 pound-inch average static torque~~	~~TP201.1B~~

Defect Identification Methods Used In the Verification Procedure Column

1. TP201.5: Determination (by Volume Meter) of Air to Liquid (A/L) Volume Ratio of Vapor Recovery Systems of Dispensing Facilities, Adopted April 12, 1996

2. TP201.4: Determination of Dynamic Pressure Performance of Vapor Recovery Systems of Dispensing Facilities

3. TP201.3: Determination of Two-Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities

4. GDF-01: Bag Test for Multi-Nozzle Vacuum Assist Systems

5. GDF-03: Pressure Integrity Performance Verification for Vacuum Assist Systems [Squeeze Bulb Test]

6. Method 9: 40 Code Federal Regulations Part 60 Appendix A: Reference Method 9/ EPA Section 3.12 Visible Determination of the Opacity of Emissions from Stationary Sources

~~7. Ring Gage Test Specifications: 40 Code Federal Regulations Part 80 Section 80.22 (f)(2)~~

~~8~~ 7. G-70-186-187 Exhibit 5: Fillneck Vapor Pressure Regulation Fueling Test

~~9~~ 8. EPO No. 26-F-1: Vapor Recovery Systems Field Compliance Testing

~~10. TP201.1C: Pressure Integrity of Drop Tube/Drain Valve Assembly~~

~~11. TP201.1B: Static Torque of Rotatable Phase I Adapters~~

~~12~~ 9. Storage Tank Pressure Device: described and shown in TSD Appendix 6